Developing a Web-based Decision Tool for Siting Transmission Lines

PIER-Environmental Area and
Facility Siting Division

Aspen
Environmental Group

Decision Tool: Planning Alternative Corridors for Transmission (PACT)

- **Objective:**
  - Develop a web-based tool to assess transmission corridors considering all factors: environmental, community, health/safety, engineering, and economic values
- **Goals:**
  - Facilitate identification of transmission line corridors
  - Allow public and decisionmaker understanding of the tradeoffs between proposed and alternative routes based on objective, comprehensive, consistent, and transparent analysis

PACT Builds on Existing SCE Decision-Support Tool

- SCE recognized need to develop tool that clearly communicates differences between alternatives
- Still in development – model was used internally on substation and local transmission
- Effective means for internal cross-team communication and evaluation
- Recognized potential and need for broader application

Examples of Factors and Metrics

- Biological Resources
  - Listed species, protected habitats
- Engineering
  - Soil types, faults, flood, slope
- Land Ownership
  - Federal land, tribal land, protected land

CEQA Checklist: Land Use

Land Use and Planning

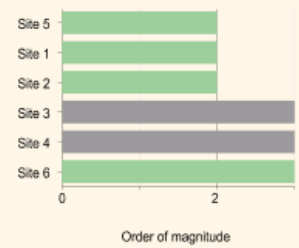
The proposed project must not conflict with land use plans, policies, or regulations under CEQA. Electricity facilities are more compatible with vacant, agricultural, industrial, or commercial development. Both current and planned future land use compatibility must be assessed. Residential areas and schools are particularly sensitive land uses to consider in screening sites.

Options

There are no selections developed for this page.

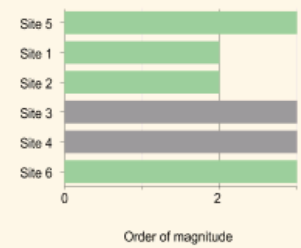
Current Land Use score

Score for Current Land Use.



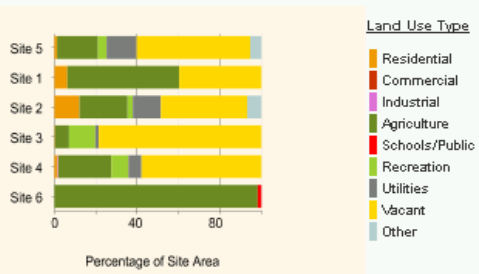
Future Land Use score

Score for Future Land Use.



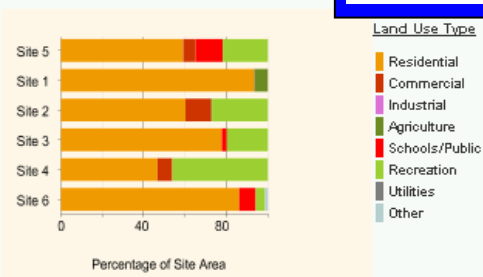
Current Land Use Type

This chart shows SCAG Land Use types, within 1/2 mile of site.



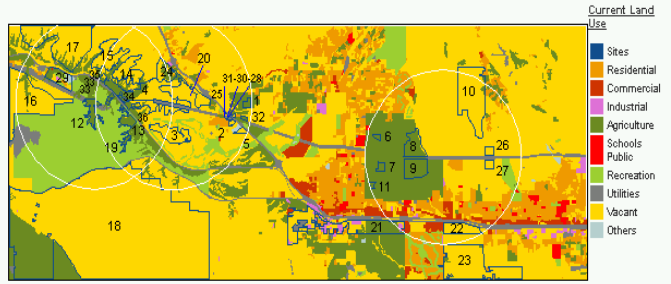
Future Land Use Type

This chart shows future Land Use types, within 1/2 mile of site.



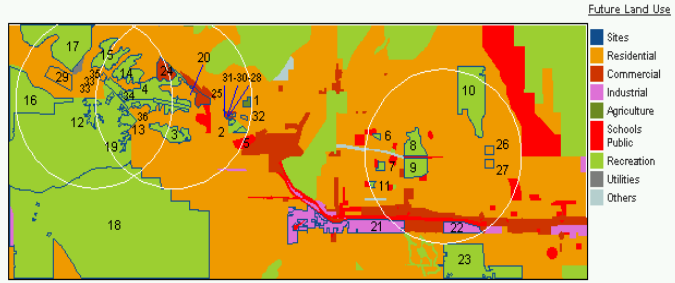
Current Land Use Map

The locations of the sites and the Current Land Use designations for those locations based on scenario selections. Sites may not be suitable depending on the Land Use designation.



Futur Land Use Map

The locations of the selected sites and the future Land Use designations for those locations based on scenario selections. Sites may not be suitable depending on the Land Use designation.



Engineering and Facilities Connection

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Oak Valley Phase 3

Last Revised 11/24/04

Engineering and facilities connection

Engineering and facilities connection

Utility companies are well known for their ability to develop cost-effective solutions to improve service, for their technical design expertise, and for their ability to overcome construction obstacles in difficult terrain. Constructability and connection to the grid are critical factors in the development of a reliable and efficient electrical system.

Engineering and facilities connection scores

The total score for the Engineering and facilities connection component is made up of several indicators that relate to constructability and access to existing SCE facilities. Since some of these factors are also on the CEQA checklist (e.g., flood hazard, drainage), they are not included in this section. Some constructability indicators are derived from GIS data (e.g., site size, slope), while others are scored directly by the team (e.g., access to the proposed site, soil contamination). All of the facilities connection factors are scored by specialists based on their location (e.g., within target areas defined by load, north of the corridor west of Devers) or based on specialized analysis (e.g., microwave tower communication).

Options

Set in numerical terms, the protection priority for the Engineering indicators. For each indicator, choose a protection priority factor. Your choice will affect the charts below. The overall score for all sites is indicated in the Executive Summary, which will incorporate the choices you make here.

Constructability

Site size:	None
Low Slopes:	Medium
Soil contamination:	LowMedium
Facility change:	LowMedium
Site access:	Medium

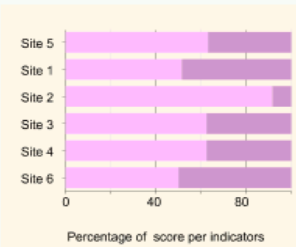
Access to Existing SCE Facilities

ROW access:	Medium
Microwave Access:	Medium
Central targeted area:	None

Save your selections

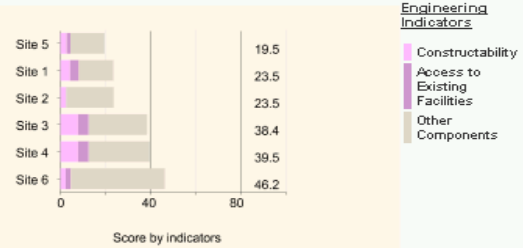
Indicator Performance

Score, in Percentage, for each Indicator.
The longer the bar, the higher the impact of the indicator.



Site Comparison

Impact on each site by Engineering indicators, as shown in the legend.
The longer the bar, the higher the impact.



Summary of Model Results

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Executive Summary

Purpose

SCE's Transmission Long Range Plan has identified the need for a new AA bank substation in approximately 2008. This is when we expect to exceed the AA bank transformer capacity of Mira Loma substation. To avoid overload at Mira Loma, a 500/230 kV substation will be required somewhere between Etiwanda and San Bernardino substations.

Site Evaluation

Twenty five potential sites for the new 500 kV substation are evaluated here using SCE's SITING computer modeling solution. The SITING tool converts technical indicators into a suitability score between 0 (least impact/best choice) and 1 (greatest impact/worst choice). Performance scores are calculated for each indicator and combined into an overall suitability score for each site. Sites can also be compared based on the raw technical indicators themselves. The Appendix lists all the indicators in detail.

Click for more information

Options

Set in numerical terms, the protection priority for the strategic components. For each component, choose a protection priority factor.

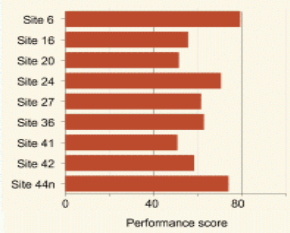
Select your weighting for Environmental:	High
Select your weighting for Community:	High
Select your weighting for Cost:	High
Select your weighting for Engineering:	High

Save your selections

Site Performance

This chart shows the performance for each sites

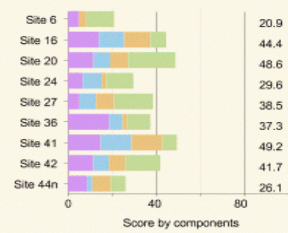
A long bar indicates good performance



Site Comparison

This chart shows strategic components impacts for each site.

A long bar indicates high impact.



Site Comparison Map

This map shows all of the site locations and site scores for this project. The site with the lowest score is the best site, as the low score indicates the least impedence or obstacles for building on that site.

Development of PACT Being Considered by Energy Commission

- Technically based –involvement by technical/regulatory experts and utilities
- Applicable from project screening to final permitting
- State-wide applicability
- Hosted by regulatory agency
- Applicability for site designation (banking)

PACT Success Requires Broad Participation

- Guidance provided by Advisory Committees
  - Policy Advisory Committee (PAC)
    - » Provide guidance in research direction
  - Technical Advisory Committees (TACs)
    - » Provide technical expertise
    - » TACs for each technical area (e.g. biology, engineering, cultural, land use)

Advisory Committees Have Key Roles in Guiding the Project

With contractor assistance, advisory committees will be responsible for:

- Assessing existing tool
- Modifying tool scope and attributes
- Developing weighting criteria
- Defining data needs and output
- Designing user interface

PACT Would Facilitate the Transmission Planning Process

- Allow for comparisons of alternatives in a common format
- Allow user to evaluate impacts/benefits of alternatives; understand trade-offs
- Give decision makers format to make fully informed judgments
- Facilitate timely siting of much needed transmission lines

Communication Tool: Explain Process to Stakeholders

- Technical issues are multi-disciplinary and require balancing of often conflicting priorities
- Decisions involve values in addition to technical information
- Different stakeholders hold different values
- The model helps illustrate decisions based on defensible, transparent, and comprehensive analysis

PACT Would Educate Stakeholders about Agency and Utility Decisions

- Projects would still have opposition, but PACT could:
  - Help demonstrate that the process is objective, transparent and provided opportunity for involvement
  - Illustrate benefits, costs, alternatives considered, need for broader state or regional benefits, and mitigation
  - Reduce level of opposition by educating the public

Proposed Schedule

Execute contract	July 2005
Establish PAC & TACs	Summer 2005
Define attributes of PACT	Fall 2005
First test of model	Fall 2005
Develop modules & data needs	Winter 2005
Continual testing & refining	Ongoing
Transfer PACT to host agency	3rd Quarter 2007

The Process is Dynamic -- We Want Your Comments

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